

## GUIDED DEVELOPMENT AND SUPPORT OF HYDROGEL-CELL COMPOSITIONS

### Abstract of the Invention

The invention features a method for generating new tissue by obtaining a liquid hydrogel-cell composition including a hydrogel and tissue precursor cells; delivering the liquid hydrogel-cell composition into a permeable, biocompatible support structure; and allowing the liquid hydrogel-cell composition to solidify within the support structure and the tissue precursor cells to grow and generate new tissue. The invention also features a tissue forming structure including a permeable, biocompatible support structure having a predetermined shape that corresponds to the shape of desired tissue; and a hydrogel-cell composition at least partially filling the support structure, wherein the hydrogel-cell composition includes a hydrogel and tissue precursor cells. The new tissue forming structure can be used in new methods to generate various tissues (e.g., to treat defective tissue) including new bone, cartilage, and nervous tissue such as spinal cord tissue. The invention also new isolated nervous system stem cells.

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